CLAIMS

What is claimed is:

1. A method for frequency-time sliced resource allocation in a wireless ATM network, the method comprising:
a) receiving on a wireless signaling channel a request for access to a shared frequency-time sliced wireless medium;
b) searching a channel matrix for a set of available frequency-time slots, wherein the channel matrix represents a time frame within the shared frequency-time sliced wireless medium; and
c) allocating the set of available time-slots if the allocation does not violate a frequency switching constraint, and if the set of available frequency-time slots contains a number of slots no smaller than a requested number of slots.

2. The method of claim 1 wherein the searching step comprises searching a channel-chunk matrix comprising a list of contiguous chunks of available time slots in each frequency of the shared frequency-time sliced wireless medium.

3. The method of claim 1 wherein the searching step comprises searching for a set of available time slots such that all the available time slots are in a single frequency.

4. The method of claim 3 wherein the searching step comprises searching for a single contiguous set of available time slots.

5. The method of claim 4 wherein the size of the set of available slots is equal to the requested size.

6. The method of claim 4 wherein the size of the set of available slots is greater than the requested size.

7. The method of claim 1 wherein the searching step comprises searching for a set of available slots such that the available time slots are in multiple frequencies.

8. The method of claim 1 wherein the searching step comprises a greedy resource allocation strategy.

9. The method of claim 8 wherein the greedy resource allocation strategy comprises the following successive allocation steps:
a) searching for a single contiguous set of available time slots in a single frequency, where the size of the set of available slots is equal to the requested size;
b) searching for a single contiguous set of available time slots in a single frequency, where the size of the set of available slots is greater than the requested size;
c) searching for separate chunks of available time slots in a single frequency; and
d) searching for separate chunks of available time slots in multiple frequencies.

10. The method of claim 9 wherein each allocation step comprises checking whether the allocation violates a frequency switching constraint.

11. The method of claim 1 further comprising combining the received request with other requests and prioritizing the combined requests.

12. The method of claim 1 further comprising updating the channel matrix and transmitting a notification of allocation to a user.